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# THE IMPORTANT RECORD OF *MONOLEXIS FUSCICORNIS* FORSTER, 1862 (HYMENOPTERA, BRACONIDAE, DORYCTINAE) IN TURKEY WITH NOTES ON *TROGOXYLON* *IMPRESSUM* (COMOLI, 1837)

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**ABSTRACT** In the present paper, *Monolexis fuscicornis* Förster, 1862 (Hymenoptera, Braconidae, Doryctinae) is recorded in Turkey for the second time and it is documented as parasitoid of *Trogoxylon impressum* (Comolli, 1837) (Coleoptera: Bostrichidae), firstly pest *T. impressum* (Comolli, 1837) record on fig plants. This damage to the fig plant and nutritional behavior with exit holes was observed for the first time with this work. In additionally, this record was firstly reported in the Southeast Anatolia region of the pest. Harmful has the potential to cause significant damage to fig plants over the years. It is necessary to studies whether the natural enemy detected on the pest is under the pressure of this pest. In this study, *M. fuscicornis* Förster, 1862 is recognised as larva-pupa parasitoid of *T. impressum*, important pest

in fig tree plantations in Turkey. This interaction could have significant implication in biodiversity conservation and pest management. Hence, this new parasitoid-host interaction on fig plants has highly significance in pest management and biocontrol, because it is thought that the damage will increase in the future.

**Keywords:** parasitoid; new record; Middle East; *Ficus carica*; host; biocontrol; pest management.

## INTRODUCTION

Doryctinae is one of the most specified subfamilies in Braconidae (Shenefelt and Marsh, 1976). Most Doryctinae species for which the biology is known are idiobiont ecto-

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parasitoids of several wood-boring beetle larvae (Marsh, 1997; Yu *et al.*, 2012).

Doryctine species are parasitoids of bark beetles, pest in agriculture and forest context, playing a fundamental role in pests control (Shaw and Huddleston, 1991).

At the moment, 67 species are reported for Turkey (Beyarslan and Aydogdu, 2013; Beyarslan, 2015). *Monolexis fuscicornis* Förster, 1862 is recorded in Turkey for the second time and it was recognised as parasitoid of *Troxylon impressum* (Coleoptera: Bostrichidae). The family of the Lyctidae comprises worldwide approximately 75 species of small, brownish beetle, which exist on dry material, such as wood, stored grain, herbs and roots (Ross, 1952).

The Lyctidae are also known as powderpost beetles (Halperin and Geis, 1999). *T. impressum* parasites several trees and shrubs species, such as *Acacia albida*, *Cerammia siliqua*, *Cercis siliquastrum*, *Dalbergia sissoo*, *Ficus carica*, *Ficus intusa*, *Ficus sycomorus*, *Mangifera indica*, *Pistacia lentiscus*, *Pistacia vera*, *Punica granatum*, *Quercus calliprinos*, *Juglans* sp., *Populus* (Salicaceae), *Vitis vinifera*, *Schinus terebinthifolius*, *Zizyphus spin* addition to *Eucalyptus* spp. in Israel and the other countries (Adlbauer 1998; Halperin and Geis, 1999; Bahillo de la Puebla *et al.*, 2007; Baena and Zuzarte, 2013), and is presumably polyphagous.

The larvae feed preferentially in dry sapwood, and several generations may succeed each other in the same

piece of wood (Bahillo de la Puebla *et al.*, 2007). In Turkey, only few species of Braconidae have been reported as natural enemies of plantation pests; Güçlü and Özbek (2011) recognised *Eubazus* (*Eubazus*) *pallipes* as para-site of *Lyctus brunneus*, *L. linearis*, *L. planicollis*, (Coleoptera: Bostrichi-dae). However, no species have been recorded, as natural enemies of the *T. impressum* on fig plants. In this study, *M. fuscicornis* Förster, 1862 is recognised as larva-pupa parasitoid of *T. impressum*, important pest in fig tree plantations in Turkey. This interaction could have significant implication in biodiversity conservation and pest management.

## MATERIALS AND METHODS

Sampling campaign was carried out between February and July, both in 2016 and 2017. Perennial fig trees, dying because of the parasites, were cut and reduced into pieces. Wood pieces were stored in emergence chambers.

The rearing procedure was carried out between February 15, 2016 and July 30, 2017. Wood samples were checked weekly and the emerging individuals were collected. *T. impressum* pupation chambers were marked, emergence holes of both external barks of the plant, through which adult *T. impressum* and *M. fuscicornis* were photographed microscope and recorded.

## RESULTS AND DISCUSSION

*Troxylon impressum* (Comolli, 1837) and the parasitoid *Monolexis fuscicornis* Förster, 1862 were

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obtained during 2017; no parasitoid species were detected on this species in the previous year.

***Trogoxylon impressum***, Comolli, 1837

**Material examined:** Diyarbakır, Eğin, Turkey, 28.04.2017, 20 spec. *Ficus carica*, ex larvae, Leg. Özgen. Note: species so far recorded on

Turkey only for Antalya (Anonymous, 2017).

**Distribution:** Mediterranean region, Middle East, Turkmenistan, Caucasus. Introduced into USA, Argentina and Turkey (Antalya) (Anonymous, 2017; Hagstrum and Subramanyam, 2009; Gerberg, 1957).



Figure 1 - *Trogoxylon impressum* Comolli, 1837

**Remarks:** See feeding of the species around the exit holes on the outer bark of the fig plant and the

inner parts and the white dust it secretes (Fig. 2). This dust is also found on the elytra of this species.



Figure 2 - Feeding and powder on *Ficus carica* plant upper and inner shell of powderpost beetle *Trogoxylon impressum* Comolli, 1837.

*Monolexis fuscicornis*, Förster, 1862 (Fig. 3).

**Material examined:** Diyarbakır, Eğil, Turkey, 30.06.2017, 3 exc. *Ficus carica*, leg. Özgen.

**Distribution:** Düzce (Yalçın *et al.*, 2017). In this species, host, host food, biology and general distributions obtained up to now are given below.

**Diagnosis:** body length: 3.3 mm, antenna length 2.75 mm, forewing length: 2.8 mm mesosoma length: 1.1 mm, metasoma length: 1.75 mm, ovipositor sheath length: 2.3 mm,

head transverse, vertex transversely rugose, antennae 25-segmented, first flagellar segment shorter than 2<sup>nd</sup> segment, mesonotum with dense granulate sculpture, radial cell of forewing not reduced, recurrent vein postfurcal, nervulus almost interstitial, first abdominal tergite slightly longer than its width at apex, only 1<sup>st</sup> and 2<sup>nd</sup> abdominal tergites, except for their apices, longitudinally rugose, body color brownish yellow; eyes black, wings membrane hyaline, pterostigma and veins dark.



Figure 3 - *Monolexis fuscicornis* Förster, 1862

**Host species:** *Amphicerus bimaculatus* [host plant: *Punica granatum*]; *Chaetoptelius vestitus* [host plant: *Pistacia vera*]; *Enneadesmus trispinosus* [host plant: *Tamarix* sp.]; *Heterobostrychus brunneus* [host plant: *Triplochiton scleroxylon*]; *Laemophloeus capensis*;

*Lyctus brunneus* [host plant: *Xanthophyllum macintyrrii*]; *Lyctus linearis*; *Lyctus parallelocolis* [host plant: *Eucalyptus maculata*]; *Lyctus planicollis*; *Mesosa curculionoides*; *Minthea rugicollis*; *Phloeotribus scarabaeoides* [host plant: *Ceratoniasiliqua*]; *Scobicia chevrieri* [host

plant: *Ceratonia siliqua*, *Pistacia vera*]; *Scobicia pustulata*; *Sinoxylon ceratoniae* [*Cercis siliquastrum*]; *Sinoxylon sexdentatum*; *Sternidius alpha* [host plant: *Robinia pseudoacacia*]; *Trogoxylon*; *Trogoxylon parallelipedum*.

**General distribution:** Argentina, Australia, Austria, Azerbaijan, Brazil, Bulgaria, Canada, Costa Rica, Check Republic, France, Georgia, Germany, Hungary, Ireland, Israel, Italy, Japan, Malaysia, Spain, Tunisia, Turkmenistan, United Kingdom, U.S.A. (Anonymous, 2018).

## CONCLUSIONS

In view of results, this record was firstly record in the Southeast Anatolia region of the pest. Harmful has the potential to cause significant damage to fig plants over the years. It is necessary to studies whether the natural enemy focused on the pest is under the pressure of this pest. In this study, *M. fuscicornis* Förster, 1862 is recognised as larva-pupa parasitoid of *T. impressum*, important pest in fig tree plantations in Turkey. This results could have significant implication in biodiversity conservation and pest management.

Hence, this new parasitoid-host interaction on fig plants has highly significance in pest management and biocontrol, because it is thought that the damage will increase in the future.

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